

1. A base station apparatus comprising:

transmission destination determining means for determining one or a plurality of communication terminal apparatuses to which packet transmission is performed based on the direction in which each communication

directivity transmitting means for carrying out packet signal transmission with directivity to said determined communication terminal apparatus.

25 3. The base station apparatus according to claim 1, wherein  
when the directivity transmitting means divides  
communication terminal apparatuses into several groups

and carries out transmission with directivity formed group by group, the transmission destination determining means selects the communication terminal apparatus with the highest priority from each group.

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4. The base station apparatus according to claim 1, further comprising modulation system determining means for determining a packet signal modulation system based on the channel quality of the downlink, wherein the  
10 directivity transmitting means modulates packets according to said determined modulation system and carries out transmission with directivity.

5. The base station apparatus according to claim 4, wherein  
15 the modulation system determining means adopts a higher rate modulation system as the channel quality of the downlink increases.

6. The base station apparatus according to claim 4, further  
20 comprising density calculating means for calculating the density of a peripheral area of the communication terminal apparatus determined by the transmission destination determining means and directivity width controlling means for controlling directivity widths based on the  
25 modulation system and said calculated density, wherein the modulation system determining means determines the modulation system of the packet signal based on said

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calculated density and the directivity transmitting means carries out transmission with directivity under the control of said directivity width controlling means.

5 7. The base station apparatus according to claim 6, wherein the modulation system determining means adopts a higher rate modulation system as the density calculated by the density calculating means decreases.

10 8. The base station apparatus according to claim 6, wherein the directivity width controlling means controls the directivity width so that the directivity width becomes narrower for a higher rate modulation system.

15 9. The base station apparatus according to claim 6, wherein the directivity width controlling means controls the directivity width so that the directivity width becomes narrower as the density calculated by the density calculating means increases.

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10. The base station apparatus according to claim 6, further comprising speed detecting means for detecting the speed of a communication terminal apparatus determined by the transmission destination determining means, wherein the modulation system determining means determines the packet signal modulation system based on said detected speed and the directivity width controlling

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11. The base station apparatus according to claim 10,  
wherein the modulation system determining means adopts  
a lower rate modulation system as the speed detected by  
the speed detecting means increases.

15 13. A communication terminal apparatus that carries out  
a radio communication with the base station apparatus  
according to claim 1 and receives packet signals sent  
from said base station apparatus.

determining priority for a plurality of communication terminal apparatuses in communication in descending order of the channel quality of the downlink;

25           determining one or a plurality of communication  
terminal apparatuses to which packet transmission is  
performed based on the direction in which each

communication terminal apparatus exists and said  
priority; and

carrying out packet signal transmission with  
directivity to said determined communication terminal  
5 apparatus.

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